

BOTTLED TYPE WATER DISPENSER

BACKGROUND OF THE INVENTION

The present invention relates generally to a bottled type water dispenser and, more particularly, to a unitary seat of water inlet and venting
5 pipe of a bottled type water dispenser. The bottled type water dispenser is easily fabricated and assembled, and the interior thereof is easily cleaned.

The conventional water dispenser typically includes a filter mechanism installed on a bottled type water storage device. The water storage device is inversely disposed on/in the water dispenser, allowing
10 water contained therein to flow into the water dispenser. For example, in US Patent No. 6,123,232, the water dispenser includes a generally cylindrical liquid reservoir normally open at its upper end for receiving liquid from an inverted bottle having a downwardly and inwardly sloping shoulder portion merging into a depending neck portion defining a discharge opening, said
15 liquid dispensing device comprising, in combination, a top support having a generally centrally disposed annular opening with a depending skirt portion dimensioned for reception in the open upper end of said reservoir, said top support defining a generally annular ring portion for supporting said shoulder portion of said inverted bottle above said liquid reservoir and
20 wherein said top support includes a downwardly extending peripheral margin for generally centering said annular opening over said reservoir, a feed tube comprising a generally cylindrical outer portion and a substantially hollow interior defining at least one flow path for dispensing liquid from said inverted bottle into said reservoir and for admitting replacement air
25 from said reservoir into said bottle, means for mounting said feed tube in upstanding relation in the upper portion of said reservoir, said mounting

means including a cup-shaped structure formed integrally with and supporting said upstanding feed tube in generally centered relation with respect to said annular opening and said reservoir, said cup-shaped structure having an inwardly stepped sidewall and an upper portion for suspending
5 said integral feed tube and cup-shaped structure from said top support, and means defining an opening through said cup-shaped structure radially outwardly from said feed tube for admitting air into the upper end of said reservoir.

In the above-mentioned conventional water dispenser, the top support,
10 the feed tube and the cup-shaped structure are all independent members requiring opening multiple molds for fabrication. Some of such members are difficult to install, and too many separate members also cause inconvenience of assembly. Further, it is very laborious and time-consuming for cleaning the internal storage tank or the cold or hot water tub
15 since all of the members have to be detached from the water dispenser.

BRIEF SUMMARY OF THE INVENTION

The present invention provides a bottle type water dispenser which can be easily fabricated, assembly and used.

The bottle type water dispenser provided by the present invention
20 includes a water tank in a body thereof. The body and the water tank each have an opening. A detachable seat of water inlet and venting pipe is installed on the openings. The seat of water inlet and venting pipe includes an integrally formed structure and is directly connected to the body. The seat of water inlet and venting pipe includes a water inlet and venting pipe,
25 allowing a mouth of the water bottle inserted therein. Therefore, as the water assembly requires only the connection of the seat of water inlet and

venting pipe, the body and the water tank, it is easily disassembled to clean the water tank.

An air inlet port is formed on a top portion of the water tank. A one-way valve is mounted at the air inlet port. When the water tank has a full water level, the one-way valve is pressurized by the water to block the air inlet port. Therefore, no water or air can flow through the air inlet port. When the water level drops, the one-way valve falls due to gravitation to leave the air inlet port open. Therefore, air flows from the air inlet port allowing fluent water dispense.

The present invention is further characterized in applying a sealing member between the seat of water inlet and venting pipe and the water tank. The sealing member includes a circular sealing ring.

BRIEF DESCRIPTION OF THE DRAWINGS

These, as well as other features of the present invention, will become more apparent upon reference to the drawings wherein:

Figure 1 shows a perspective view of a water dispenser provided by the present invention;

Figure 2 shows an exploded view of a seat of water inlet and venting tube provided by the invention;

Figure 3 shows a cross sectional view of the internal assembly of the water dispenser provided by the present invention;

Figure 4 shows a schematic view of full water level of a water tank when the water dispenser is in use; and

Figure 5 shows a schematic view for water flowing into the water tank.

DETAILED DESCRIPTION OF THE INVENTION

Referring to Figures 1 and 4, a water bottle 5 filled with water is installed on top of a water dispenser 1 to provide drinking water for the water dispenser 1. As shown in Figures 2 and 3, the body 11 of the water dispenser 1 includes a water tank 2 at a top portion thereof. The body 11 and the water tank 2 have an opening 111 and 21, respectively. The water tank 2 is partitioned into an upper chamber 23 and a lower chamber 24 by a partitioning board 22. Two outlet apertures 221, 222 are formed on the partitioning board 22. The outlet aperture 221 allows the water contained in the upper chamber 23 flowing into the lower chamber 24, while the other outlet aperture 222 is connected to a water tap 12 or a hot water tub via an outlet pipe 25 as shown in Figure 1. A cooler 3 is formed on the exterior wall of the lower chamber 24, such that water contained in the lower chamber 24 is cooled down to become cold water. An outlet aperture 241 is formed on a bottom portion of the lower chamber 24. The outlet aperture 241 is connected to a water tap 13 (as shown in Figure 2) via an outlet pipe 26. The water tank 2 is covered with shielding material 27 such as polyfoam.

Referring to Figures 2 and 3, in the present invention, a detachable seat of water inlet and venting pipe is installed at the openings 111, 21 of the body 11 and the water tank 2. The seat of water inlet and venting pipe 4 includes a U-shape seat 41 with a predetermined depth allowing the mouth 51 of the water bottle 5 inserted therein. The periphery of a top portion of the U-shape seat 41 extends outwardly and inclined upwardly to form a contact surface 42. The free end of the contact surface 42 further extends to form an inverse L-shape fastening part 43. A plurality of equal distant latches 44 are formed on a bottom end of the fastening part 43, while apertures 112 are formed on the body 11 for receiving the latches 44.

In the present invention, a hollow water inlet and venting pipe 45 extends from a central bottom portion of the U-shape seat 41. The water inlet and venting pipe 45 includes a water inlet aperture 451 and a venting aperture 452 on a sidewall thereof. A sealing member is mounted between
5 the water inlet and venting pipe 4 and the water tank 2. In one embodiment, the sealing member includes a circular sealing ring 6, of which a clipping socket 61 is formed on an exterior sidewall thereof to be engaged with a rim of the opening 21 of the water tank 2. Thereby, the sealing ring 6 seals the tank 2 and the water inlet and venting pipe 4.

10 Referring to Figure 3, in the present invention, an air inlet port 28 is formed on the top portion of the water tank 2. A one-way valve 7 is mounted on the air inlet port 28. When the water tank 2 has a full water level, the water level push the one-way valve 7 upwardly, such that the air inlet port 28 is filled by the one-way valve 7, and water in the water tank 2
15 cannot overflows through the air inlet port 28. When the water tap 12 (or 13) of the water dispenser 1 is switched on, water level drops to release pressure against the one-way valve 7. The one-way valve 7 thus descends due to gravitation, such that air flows in through the air inlet port 29, and water flow is fluent.

20 Referring to Figures 2 and 3, while assembly the water dispenser, the seat of water inlet and venting pipe 4 is installed on the openings 111, 21 of the body 11 and the water tank 2. The sealing ring 6 is mounted on a periphery of the U-shape seat 41. The clip socket 61 formed on the exterior side of the sealing ring 6 is engaged with the edge of the opening 21 of the
25 water tank 2. Therefore, the water tank 2 and the seat of water inlet and venting pipe 4 are sealed. The latching members 44 formed on the latching portion 43 of the seat of water inlet and venting pipe 4 are received in the

apertures 112, such that a water inlet and venting pipe 45 is installed on top of the water dispenser 1 and connected to the body 11 and the water tank 2.

When the water dispenser 1 is in use, as shown in Figure 4, the mouth 51 of the water bottle 5 is inversely inserted into the U-shape body 41, such that the water inlet and venting tube 45 is inserted into the mouth 51, allowing water flowing from the water bottle 5 into the water tank 2 through the water inlet aperture 451 of the water inlet and venting pipe 45, and air flowing from the water tank 2 to the water bottle 5 through the venting aperture 452. By the air pressure, water in the water bottle 5 flows into the water tank 2, while water contained in the upper chamber 23 flows to the lower chamber 24 through the water outlet aperture 221 of the partitioning board 22. The water in the lower chamber 24 is cooled down by the cooler 3, while water in the upper chamber 23 is fed into a hot water tube for via a pipe 25 for heating. The water dispenser 1 thus can provide cold water and cold water.

In the present invention, once the water tank 2 has a full water level, the water push against the one-way valve to block the air inlet port 28. Therefore, water in the water tank 2 will not overflows the body 11, and external air will not enter the water tank 2 through the air inlet port 28 as shown in Figure 4.

As shown in Figure 5, once the tap 12 (or 13) of the water dispenser 1 is switched on and water level of the water tank 2 drops, the upward pressure against the one-way valve 7 no longer exists. The one-way valve 7 thus falls by gravitation and releases from the air inlet port 28. Therefore, air can enter the water tank 2, allowing fluent flow of water dispense from the tap 12 (or 13).

In the present invention, a unitary seat of water inlet and venting pipe is used to conveniently assemble the body 11 and the water tank 2 together. To clean the water tank 2, only by detaching the seat of water inlet and venting pipe 4, the openings 111, 21 of the body 11 and 2 are exposed, and
5 the water tank 2 can be easily cleaned.

Other embodiments of the invention will appear to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples to be considered as exemplary only, with a true scope and spirit of the invention
10 being indicated by the following claims.